Ontario

A Beef Cow-Calf Farm Example:

Your Livestock Operation Under the Nutrient Management Act, 2002

Ministry of Agriculture, Food and Rural Affairs
Publication 828

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Introduction

This booklet is part of a series of livestock information books developed to help farmers understand the implications of the *Nutrient Management Act, 2002* and the associated regulations and protocols. The act addresses how nutrients, including manure, are managed while they are stored and applied to farmland for the purpose of growing agricultural crops.

For more information, or to see all of the titles in this series, visit the OMAFRA Web site at **www.omafra.gov.on.ca** or call the Agricultural Information Contact Centre at 1-877-424-1300.

For more information on provincial acts and regulations, visit the Ontario Statutes and Regulations Web site at **www.e-laws.gov.on.ca**. You can access the applicable forms online at **www.gov.on.ca**.

The farm operation information used in this booklet is not based on any existing farming operation and is for demonstration purposes only.

Some Common Acronyms

The *Nutrient Management Act, 2002* brought with it new terms that have quickly become common, and are usually abbreviated. These include:

Manure Storage Software Program	MSTOR
Minimum Distance Separation	MDS
Nutrient Management Act, 2002	NMA or act
Nutrient Management Computer Program	NMAN
Nutrient Management Strategy	NMS
Nutrient Management Plan	NMP
Nutrient Unit	NU
Nutrient Management Act, 2002 General Regulation	O. Reg. 267/03 or the regulation

Farmers planning to apply for a building permit for a livestock barn and/or permanent manure storage, and those with large operations, need to be aware of the recent nutrient management legislation. This booklet reviews two key documents – the Nutrient Management Strategy (NMS) and the Nutrient Management Plan (NMP) – and the requirements that must be met in order to obtain approval of the NMS and/or NMP (NMS/P). An NMS/P will assist the agricultural operator in managing nutrients in a way that will be environmentally friendly and economically viable. An approved NMS/P can be used in the process of obtaining a building permit for a new or expanding nutrient storage facility. Many of the requirements in the regulation do not come into force until the farmer is required to have an NMS or NMP.

Nutrient Units and Compliance Schedule

All farms planning on building a barn or manure storage (including earthen storage) located within 100 m (328 ft) of a municipal well or applying non-agricultural source materials (NASM) are now affected by the NMA. In addition, farms ≥ 300 NU are also affected by the act. The size of the agricultural operation is determined by the number of nutrient units (NUs) on that agricultural operation. An NU is defined as having the fertilizer equivalent of 43 kg of nitrogen or 55 kg of phosphorus (whichever is lower). NUs were created to enable the fair comparison of various nutrient types including agricultural, non-agricultural and commercial products (in essence an apples-to-apples comparison). A farm is defined as land no smaller than a single deed that meets the requirements of section 5 of the regulation.

How does the *Nutrient Management Act, 2002*, affect farmers?

The table below provides examples of the number of animals needed to make one NU. A complete listing for a variety of livestock can be found in the Farm Unit Declaration Form in the Appendices Section.

Number of Animals per Nutrient Unit on Farm Units Generating Manure

Type of Animal	Nutrient Units (animals/ NU)
Beef Cows – Includes calves to weaning	1.0
Beef Shortkeep (12.5 – 17.5 months)	2.0
Beef Backgrounders (7 – 12.5 months)	3.0
Beef Feeders (7-16 months)	3.0
Chicken Broilers (8 week cycle)	351
Chicken Broilers (9 week cycle)	300
Chicken Broilers (10 week cycle)	250
Chicken Broilers (12 week cycle)	199
Chicken – Broiler Breeder Growers (females + males transferred out)	300
Chicken – Broiler Breeder Layers (females + males transferred in)	100
Dairy Cow – Milking Age Large Frame	0.7
Dairy Heifers – Large Frame	2.0
Dairy Calves – Large Frame	6.0
Horses – Large Frame	0.7
Horses – Medium Frame	1.0
Horses – Small Frame	2.0
Sheep – Meat Ewes and Rams (including unweaned offspring and replacements)	8.0
Sheep – Feeder Lambs	20.0
Sheep - Dairy Ewes and Rams (including unweaned offspring and replacements)	6.0
Swine Feeders	6.0
Swine Sows – Dry and Boars Non-SEW	3.5
Swine Sows – Dry and Boars SEW	3.33
Swine Sows – With Litters Non-SEW	3.5
Swine Sows – With Litters SEW	3.33
Swine – Weaners Non-SEW	20.0
Swine – Weaners SEW	20.0
Turkey – Toms > 10.8 kg	76
NOTE: For animals not listed on the chart above, the number of animals per nutrient unit can be calculated by determining the number of animals that will produce the amount of nutrients that give the fertilizer replacement value of the lower of 43 kilograms of nitrogen or 55 kilograms of phosphate as nutrient.	

Nutrient Management Strategy and Nutrient Management Plan

The focus of the new act is the requirement for a NMS/P.

An NMS describes the generation, storage and destination of the nutrients produced. Essentially, in completing a NMS, farmers answer the questions, "How much manure is being produced?", "How is the manure stored?" and "Where is the manure to go?" People who own or control a livestock operation that has been phased-in must complete a NMS.

An NMP determines the details of how the generated nutrients (i.e., manure) are to be applied to a given land base. The NMP optimizes the application of nutrients to crops and enhances protection for ground and surface water.

All farm units ≥ 300 NU, and within 100 m of a municipal well, that generate nutrients and apply those nutrients to the land must prepare a NMP once the farm unit has been phased-in under the NMA.

An NMP determines the rate and timing of application of manure based on a number of different factors. These factors include:

- existing soil nutrient levels as determined through soil testing at an OMAFRA-accredited lab;
- nutrient content of the manure as determined through testing or book values;
- crops to be grown in the next five years;
- crops grown on the land in the past year;
- soil type and slope of the land;
- tillage practices used;
- method and timing of manure application;
- manure applications over the past three years; and
- proximity to surface water, including wells.

Completion of the NMS and NMP

There are two ways to complete an NMS/P. You can either complete the documents yourself or hire a certified consultant. Any person who prepares the NMS/P will need provincial certification.

Do It Yourself

There are several tools that can help you complete an NMS/P, two of which are:

- NMAN Software – a computer program developed by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) that contains all of the forms and calculations necessary for a complete NMS/P, with the exception of the required sketches. OMAFRA offers training on how to complete a strategy or plan that includes using the NMAN software.
- NMAN Workbook – a paper version of the key elements of the NMAN program. OMAFRA offers a training course on the theory and science behind NMAN and the NMAN workbook with an opportunity to use this tool. The software does provide greater detail in some areas.

To complete your NMS and/or NMP, you will need some additional forms (e.g., Farm Unit Declaration, Nutrient Management Strategy and/or Plan Sign-Off, etc.). These can be accessed at **www.gov.on.ca**.

You may choose to use another software application. However, OMAFRA only offers technical support for NMAN software.

Farmers who choose to do their own NMS/P must obtain the following certificate:

Certificate Title	For	Timeline
Agricultural Operation Planning Certificate	Agricultural operators who plan to prepare their own NMS/P	Must be certified before submitting their strategy or plan for approval

A list of the necessary courses, dates and locations are available by calling the Agricultural Information Contact Centre (AICC) at 1-877-424-1300 or from the OMAFRA Web site at **www.omafra.gov.on.ca**.

Hire a Consultant

Many farmers hire consultants to complete their NMS/P on a fee-for-service basis. Anyone completing plans and strategies for others must be certified by OMAFRA. A list of consultants that are certified by OMAFRA can be obtained by contacting the AICC at 1-877-424-1300 or from the OMAFRA Web site at **www.omafra.gov.on.ca**.

Consultant fees will vary, depending on the complexity of the situation and the acreage involved. Plans must be updated every five years and reviewed on an annual basis.

If events listed in sections 22 or 26 of the regulation occur to the operation prior to the five-year mark, then the NMS/P must be updated. Minor changes to a strategy or plan (e.g., fall spreading versus spring spreading) must be documented and require the farm operator to update the NMS/P to ensure the appropriate utilization of the manure.

Regardless of who completes the NMS/P, it is the responsibility of the farmer to ensure that the NMS/P is implemented and that all nutrient application activities are documented.

Planning for the expansion or upgrading of a farm operation can also include a number of important business planning and financial management decisions. The Canadian Farm Business Advisory Service provides low cost access to qualified independent business management consultants who can help you assess the financial performance of your current operation, consider your business options, and develop a full set of projections for any planned changes.

The Canadian Farm Business Advisory Service has three program components:

The Farm Business Assessment provides up to five days of consultation with a qualified farm business advisor to assess your current business, look at your business planning options, and develop financial projections for the changes and options you are considering. Eligible producers can access this service for a nominal fee of $100. A list of qualified advisors providing this service in your area is available by contacting Canadian Agri-Renewal Services at the telephone number below.

The second component, Specialized Business Planning Services, is available to producers who require a more specialized business plan for a major business change – such as an expansion plan or farm succession plan. This program offers government assistance of up to 50%, to a maximum of $8,000, to help offset the cost of hiring qualified consulting services.

The third component, Planning and Assessment for Value Added Enterprises, focuses specifically on assessing the feasibility and business planning needed before establishing or expanding ventures designed to add value to agricultural products. This program also provides assistance of up to 50% of the cost of consulting services – to a maximum of up to $10,000 per producer.

Information on any of these business planning services is available by calling Canadian Agri-Renewal Services toll free at 1-866-452-5558. Producers in Northern Ontario can call 1-800-461-6132.

Phase-in Periods

Livestock farms will be required to comply with the NMA as per the following schedule:

Size of Operation (in NU)	Phase-in	NMS/NMP
≤5	Not affected	Not required
Operations ≥300 (Existing or Expanding)	September 30, 2005	NMS and NMP
New and Expanding* operations >5 and <300 NU	December 31, 2005	NMS (and NMP if applicable)

** Construction of structures to house farm animals or manure storage or the building of an earthen storage*

When submitting a plan, allow sufficient time for data collection, NMS/P preparation, review and approval. Errors in the NMS/P can result in the NMS/P being returned for clarification or correction and can cause delays in the approval process, thus extending the approval time. Keep in mind that some municipalities may require a NMS/P for farms not covered by the regulation. It is important to check with your municipality to determine whether there are additional requirements that must be met.

Building Permits for Phased-in Farms

The NMA outlines criteria that must be met for building new permanent manure storage facilities. While the NMA, regulations and protocols outline the criteria that must be met before a building permit is issued for a new permanent manure storage facility, there are additional requirements that you must also follow to satisfy the *Ontario Building Code, 1992*.

Engineered Plans and Construction Supervision

Once operations are required to have a NMS/P, there are standards that apply under the regulation for the construction or expansion of permanent nutrient storage facilities. These include external permanent manure storage facilities and in-floor storage structures in the barn. The regulation requires these facilities to be designed and their construction supervised by a professional engineer. The only exception is solid manure storages with a floor area of less than 600 m^2, walls less than 1.0 m high and a volume of less than 600 m^3. To obtain a building permit for a permanent liquid nutrient storage facility or a permanent solid nutrient storage facility ≥300 NUs and without a concrete floor, the engineer must submit a site plan, a geotechnical investigation report and detailed construction drawings. The engineer is responsible for inspection during the period of construction.

Site Plan

According to the NMA, a minimum distance must be maintained between the manure storage facility and various water sources.

Minimum Distance between the Permanent Manure Storage and:	Distance (metres)
A drilled well (>15 metres deep)	15
A municipal well	100
Other wells (dug, bored)	30 (90 if the facility will store non-agricultural source materials)
Surface water	50 (as measured along the flow path)
Field drainage tiles	15
Tile inlets	50 (as measured along the flow path)
A flood plain	No building within the 100-year flood line*

** Unless a permit has been obtained under Section 28 of the Conservation Authorities Act*

Surface water includes ponds, wetlands, lakes, rivers, creeks or artificial channels that support aquatic-type plants. A grassed waterway for erosion control is not considered surface water and neither is a dug-out pond as long as it has no connection to surface water (see section 2.(1) and (2) in the regulation for clarification).

The distance is measured from the permanent manure storage facility to the top of the bank, of surface water.

Minimum Distance Separation (MDS) for Odours

The MDS formulas establish an appropriate distance separation between livestock barns, permanent manure storage facilities and neighbours. These are currently part of provincial land use policy. They are not a requirement of the regulation. Most municipalities have incorporated these guidelines into their zoning bylaws. In these cases, the MDS distances will have to be met before a building permit is issued. The municipality can provide you with the necessary MDS calculations based on information you supply.

Site Characterization

A professional engineer or geoscientist must complete a site characterization for construction or expansion of a permanent liquid nutrient storage facility or a solid permanent nutrient storage facility ≥300 NUs without a concrete floor. The site characterization establishes the hydrogeologic characteristics of the soil and the depth to the groundwater or bedrock. The soil characterization may be done by a lab analysis of a soil sample, an on-site test, or, if the soil is very heavy, a visual assessment by a professional. The results of this investigation will determine the design criteria for a permanent manure storage facility. This chart shows under which circumstances these options must be used.

	Soil Conditions Required between the Tank Bottom and the Bedrock or Aquifer	Tank Design Details
1	• 1.0 m of hydraulically secure soil* or • 1.0 m of soil with more than 15% clay	• Unlined tank, unreinforced floor
2	• 0.5 m of hydraulically secure soil* or • 1.0 m of soil with at least 10% clay	• Unlined tank, reinforced floor
3	• 1.0 m of native undisturbed material or • 1.0 m of compacted granular material	• Lined tank, unreinforced floor
4	• 0.5 m of native undisturbed material or • 0.5 m of compacted granular material	• Lined tank, reinforced floor

**one having a maximum saturated hydraulic conductivity of 1 x 10^{-8} metres per second. This is determined by a lab test of the soil. It is roughly equivalent to a soil with at least a 20% clay content.*

Reinforcing the floor or lining the excavation is costly. Farmers should also consider moving the storage to a more suitable location.

Construction Drawings

Detailed construction drawings of the manure storage (concrete, steel or earthen) and of liquid manure transfer systems are to be provided by a professional engineer. The regulation lists specific design requirements that must be met.

Storage Capacity

The regulation requires a minimum of 240 days of nutrient storage capacity, which can be comprised of:

- the capacity of the storage, less an allowance for accumulated precipitation (for open-top structures) and a 0.3 m freeboard at the top;
- temporary storage of manure in the field (solid manure only); and/or
- off-site or off-farm storage capacity if it is identified/explained in the NMS/P.

The MSTOR computer program can determine the required manure storage volume. It is part of the NMAN program.

Options for periods less than 240 days are provided for situations described in the regulation (e.g. NMS, NMP, broker, animals inside for part of year).

When expanding nutrient storage, farmers may decide to:
- add enough storage to take the expanded operation up to 240 days of storage as per the minimum requirement, or
- build larger (e.g. up to a full year of storage).

A larger tank gives more flexibility and options for spreading times. Under the following conditions, this situation can be an advantage.

- **Wet conditions in fall** – severely restrict spreading opportunities. When followed by a wet spring, this can lead to tanks overflowing when storage capacity is borderline.
- **Light soils (e.g. sandy loam)** – as calculated in NMAN, it may be recommended that spreading be delayed until cooler fall weather, in order to retard the conversion of ammonium to nitrate and reduce the risk of groundwater contamination. If this is the case, 240 days of storage may be insufficient.
- **Circular manure tanks** – the extra storage can prove less costly, as a large economy of scale applies to circular manure tanks.

Consider whether the benefits of increased storage capacity outweigh the added capital cost.

Manure Transfer Systems

On phased-in farms, the pipes and the connectors used to drain pits and transfer the manure to long-term storage must now use gasketed fittings.

Manure Application Issues

There are several considerations that will affect the location of land available for manure application. A reduction in manure application rates may be caused by the buffer zones next to surface water or dug, drilled or municipal wells.

Buffer Zones

A vegetated buffer zone of at least 3 m in width must be established next to any top of bank of surface water such as a lake, pond, ditch or creek that supports aquatic-type plants. This does not apply to a grassed waterway or a roadside ditch that has no stream. Within 10 m of this buffer strip, the manure will have to be injected or incorporated within 24 hours unless there is a living crop or at least 30% crop residue.

Water Wells

Manure, non-agricultural source materials and fertilizers are not to be applied closer than the distances shown below:

Well Type	Setbacks for Ag. Source Materials	Setbacks for Non-Ag Source Materials	Setbacks for Commercial Fertilizer/Compost
Municipal well	100 m	100 m	100 m
Drilled well*	15 m	15 m	3 m
Other wells	30 m	90 m	3 m

** Drilled well refers to a well with a minimum depth of 15 m, and a continuous watertight casing with a minimum depth of 6 m. Wells that meet these criteria are normally, but not necessarily, drilled.*

The farm operator, Janice Johnson, currently operates a 75 head cow-calf operation. She plans to expand to 160 cows to accommodate a daughter who wants to get into farming. Janice owns 80 ha (200 ac) and currently rents 20 ha (50 ac). She will rent an additional 73 ha (180 ac) to provide the additional feed required for the expanded operation.

Summary of Farm Operation

Characteristics	Existing Operation	Proposed Operation
Livestock	• 75 beef cows plus associated calves • Cows and calves on pasture for 185 days • Dry cows winter for 180 days in barn	• 160 beef cows plus associated calves • Cows and calves on pasture for 185 days • Dry cows winter for 180 days in barn
Barns	9 m x 24 m (30 ft x 80 ft)	9 m x 24 m (30 ft x 80 ft)
Farm Size	own 80 ha (25 ac) rent 20 ha (50 ac)	rent 73 ha (180 ac)
Manure Storage	12 m x 12 m (40 ft x 40 ft) concrete pad with 1.8 m (6 ft) walls	12 m x 12 m (40 ft x 40 ft) concrete pad with three 1.8 m (6 ft) walls
No. of Fields	1 field 8 ha (20 ac)	1 field 8 ha (20 ac)

- all of the land is in forage production, pasture and hay
- only manure is applied to this property
- manure is spread in late summer/early fall

A Beef Cow-Calf Farm Example

Property Description:

Home Farm: own 80 ha (200 ac)

Number of Fields	Field Area	Tillable Area
1	24 ha (60 ac)	24 ha (60 ac)
2	20 ha (50 ac)	16 ha (40 ac)
3	26 ha (65 ac)	26 ha (65 ac)
Bush	10 ha (25 ac)	0 ha (0 ac)

Weber Farm: rent 20 ha (50 ac)

Number of Fields	Field Area	Tillable Area
1	20 ha (50 ac)	20 ha (50 ac)

New Farm: rent 73 ha (180 ac)

Number of Fields	Field Area	Tillable Area
1	33 ha (82 ac)	32 ha (80 ac)
2	20 ha (50 ac)	20 ha (50 ac)
3	20 ha (50 ac)	20 ha (50 ac)

Cropping

Janice plans to pasture her cows on the Home Farm. All of the land will be in a forage rotation: cereals underseeded to an alfalfa-grass mix.

Applicability of the NMA

Janice's farm falls under the NMA because she is building a new barn and the operation will generate more than 5 NUs annually. If Janice had resided in an unorganized township where a building permit is not required for the new barn or manure storage, she would still have to comply with the requirements of the NMA. Under S.11 (4), operations that don't need a building permit, but would have required a building permit if they were in an area that required building permits are phased-in.

Janice must complete a Nutrient Management Strategy (NMS) to address the quantity and storage of the manure produced. Janice's farm is less than 300 NU and her farm unit is not within 100 m (328 ft) of a municipal well, therefore a Nutrient Management Plan (NMP) for the spreading of the manure and other nutrients does not have to be completed.

Livestock	Number of Cattle per NU	Present	After Expansion
Beef Cows (including calves to weaning)	1.0 animals per NU	Home Farm: 75/1 = 75 NU Total 75 NU	Home Farm: 160/1 = 160 NU Total 160 NU

Completing the NMS and NMP

Janice has the option to complete the NMS herself or to hire a nutrient management consultant to do it. If she decides to do it herself to save some money, she will need to be certified by OMAFRA. This will involve taking a series of training courses and submitting her NMS for review. Janice can contact the Nutrient Management Information Line at 1-866-242-4460 for more information on the training requirements for farmers and a list of certified consultants.

Manure Considerations

Outdoor Confinement Area (OCA)

Janice must consider whether the outside area for the cattle is an outdoor confinement area or an exercise yard. This depends on the size of the area and the density of the cattle inside.

Janice learns that the yard may be defined as an outdoor confinement area and possibly a permanent outdoor confinement area under the NMA. An outdoor confinement area is defined as an enclosure that has the following characteristics:

a) it has no roof, except for a roof described in point c)
b) it is composed of fences, pens, corrals or similar structures
c) it may contain a shelter to protect the animals from the wind or another shelter with a roof of an area of less than 20 m^2 (215 ft^2)
d) it has permanent or portable feeding or watering equipment
e) the animals are fed or watered at the enclosure
f) the animals may or may not have access to other buildings or structures for shelter, feeding or watering

Janice describes the following details about the area:

1) All 160 head of cattle (80 from each barn) will have access to this area. The cattle will be able to move freely from the pole barn into the outside yard.
2) The cows will be fed using round bale feeders placed in the yard. Water bowls will also be located out in the yard.
3) There are no roofed structures in the yard area.

The yard located at Janice's farm would meet the definition of an outdoor confinement area, however, she still needs to determine if she has a permanent OCA. A permanent OCA can be defined as a high or low density OCA.

A high density OCA is defined as:

a) an outdoor confinement area that animals have access to for more than 200 days annually and generates 120 NU/ha annually or
b) an outdoor confinement area that animals have access to for less than 200 days and the area contains a sufficient number of animals to generate 300 or more nutrient units annually.

A low density OCA is defined as an outdoor confinement area that animals have access to for more than 200 days and generates 120 NU/ha or less annually.

Janice's OCA would not be considered a permanent OCA because the animals are not housed in the area for more than 200 days annually and there are only 160 NU present on the farm unit.

Storage and Spreading

Janice based her storage calculations on 180 days of manure storage and not 240 days, because the animals are on pasture for approximately 6 months (185 days) of the year. The only manure that she is storing and land applying is the manure that is generated during the winter months when the animals are confined within the pole barn and OCA. The period of use of the barn is one of the exemptions under Ontario Regulation 267/03, as amended, that enables an operation to manage at less than 240 days. This is not applicable for operations that have a period of use greater than 240 days.

Janice has no records to show how much manure is generated by her existing operation, so she used Table 3.1 in the Nutrient Management Protocol to determine that the packs (0 .9 m x 9 m x 24 m (3 ft x 30 ft x 80 ft)) within the existing and new barn, plus the manure stored within the existing and new concrete pads (2.4 m x 12 m x 12 m (8 ft X 40 ft x 40 ft)) is sufficient to achieve 180 days of manure storage.

The barns will be cleaned out twice per year, with manure stored in the three walled concrete storages until spread. Solid manure from the outside feeding yard will be scraped periodically and also piled in the storages. The manure can be stacked on the concrete pads on average 0.6 m (2 ft) higher than the walls across the level area without spilling over. The solid manure will be spread once per year in the late summer or early fall. Manure application on this operation will be by a rear-discharge spreader. The NMP will detail the volume and exact timing of manure applications that may be applied to each field.

Manure Analysis

Regular manure analyses are recommended. A good soil-sampling program monitors soil nutrient levels and prevents over application of nutrients in order to maximize crop growth. When initially assessing the existing fertility of a field it is recommended that Janice take one soil test per 10 ha (25 ac). For operations requiring a NMP, the soil tests must be analyzed by an OMAFRA accredited lab. Since Janice does not have to complete a NMP, soil tests are not required. Janice wants to ensure that she maximizes her yields so she chooses to take soil samples. Appendix C indicates the soil lab test results for this operation.

Verification of actual crop yields is important as the amount of manure that may be applied is influenced by the actual yield achieved on a per-field basis. Crop rotation records should be maintained, as different crops will result in different rates of manure application. Janice plans to weigh typical loads of hay at a local elevator to determine approximate yield and record bale counts to determine average bale weights for square bales.

Spreading Restrictions

Under these circumstances Janice has flexibility in determining the spreading restrictions she wants to use on her operation. Since Janice is not required to prepare a NMP in accordance with the regulation, she is not required to follow the land application standards described in Ontario Regulation 267/03, as amended. Janice has expressed interest in preparing a NMP to make efficient use of the manure generated by this operation; however, this would still not require her to follow the land application standards described in Ontario Regulation 267/03, as amended. Even though it is not a requirement, Janice feels that it is in the best interest of her operation to follow the spreading restrictions from wells and surfaces outlined in the land application standards of the regulation, voluntarily as Best Management Practices.

A drilled well exists on the Home Farm near Field 1. No manure (or other agricultural source materials) may be applied within 15 m (50 ft) of this well. The well is far enough away from the field so that there are no spreading restrictions.

When a farm is required to have a NMP, they must follow the spreading restrictions for surface water outlined in the land application standards found in the regulation. These are influenced by the management practices during and after manure application. First, there must be a minimum 3 m (10 ft) permanently vegetated buffer between surface water and fields receiving manure. Second, there must be a minimum 13 m (43 ft) manure application setback from a watercourse. This setback can be reduced under certain circumstances. The manure application setback may be reduced to a minimum of 3 m (10 ft) from surface water if the manure is incorporated within 24 hours of application, or if it is applied to a living crop or a field with 30% of crop residue.

Since Janice will be applying the manure to an established forage crop, she should maintain a minimum 3 m (10 ft) manure application setback along the identified watercourse. This will meet the requirement for both the vegetated buffer and the manure application setback. Spreading restrictions associated with this plan are illustrated in Appendix A.

Contingency Plan

Even with the best planning, circumstances can change, requiring you to alter how you store, apply and handle your manure. A good contingency plan is critical in an emergency.

A sample contingency plan for this operation can be found in Appendix D.

Runoff Management Considerations

Janice felt that covering the two 12 m x 12 m (40 ft x 40 ft) manure storages would be the most effective way of handling the runoff. As for runoff generated from the OCA, Janice is interested in using a permanently vegetated flow path. Ontario Regulation 267/03, as amended, outlines runoff management options for permanent OCAs and farm animal yards, since, Janice's OCA is not considered to be a permanent OCA it then becomes a farm animal yard. In order to use a permanently vegetated flow path, Janice's in-barn manure management needs to generate a manure with a dry matter (DM) content that is 30% or greater. Using the MSTOR program she received at training, Janice was able to determine that the projected DM content of the manure would be 30%, therefore, she can use a permanently vegetated flow path as her runoff management option. In addition to satisfying the 30% DM requirement, the permanently vegetated area would need to meet the following conditions:

- have at least a 150 m (492 ft) flow path from surface water
- located at least 3 m (10 ft) from a field tile drain
- have at least 0.5 m (20 in) of soil
- located at least 100 m (328 ft) from a municipal well
- located at least 15 m (50 ft) from a drilled well
- located at least 30 m (99 ft) from any other well

Beef Production System Changes

Adoption of these production system changes will provide Janice with a decrease in the amount of land needed for manure application. Additional information on nutritional strategies to reduce nutrient output can be found on the OMAFRA website at **www.omafra.gov.on.ca** or by calling 1-877-424-1300.

Municipal Requirements

Janice's next step is to meet with a municipal building inspector to discuss her building plans. At the meeting she learns that a number of items will be required before obtaining a building permit:

A. Minimum Distance Separation requirements
B. Siting Restrictions for Surface Water Protection
C. Site Characterization for Ground Water Protection
D. Engineered Plans and Construction Supervision

A. Minimum Distance Separation (MDS)

MDS is not a requirement of the NMA. However, as in most municipalities in Ontario, the local zoning bylaw requires the new barn to be sited according to the minimum distance separation formula. The municipal officials complete the calculations, based on the information Janice supplies, and find that the separation distances will be sufficient.

To satisfy municipal requirements, the new barn must be kept a minimum of 174 m (572 ft) from the nearest neighbour's dwelling. The MDS distance is illustrated in Appendix A.

B. Siting Restrictions for Surface Water Protection

According to the NMA, a minimum distance must be maintained between the manure storage facility and various water sources.

Minimum Distance Between the Permanent Manure Storage and:	Distance (metres)
A drilled well (see definition of drilled well)	15
A municipal well	100
Other wells (dug, bored)	30 (90 if the facility will store non-agricultural source materials)
Surface water	50 (as measured along the flow path*)
Field drainage tiles	15
Tile inlets	50 (as measured along the flow path)
A flood plain	No construction of a permanent nutrient storage within the 100-year flood line**

** A flow path does not have to be in a straight line. It is the distance that liquid must travel before reaching surface water.*
*** Unless a permit has been obtained under Section 28 of the Conservation Authorities Act*

C. Site Characterization for Ground Water Protection

When there is a plan to construct or expand a solid nutrient storage facility that does not have a concrete floor, the regulation requires an engineer or geoscientist to complete a site characterization of the soils and aquifer for the site when the farm unit will have 300 or more NU, or when there is an increase in the capacity of the farm unit to more than 300 NU. This information will determine what design parameters must be followed for the manure storage facility.

Because the proposed manure storage area will have a concrete floor and walls, no site characterization is required.

D. Engineered Plans and Construction Supervision

To obtain her building permit, Janice must provide a set of engineered building plans. She has two options for obtaining these plans:

- Option One - hire a builder who has a set of engineered drawings that can be modified to meet Janice's needs.

- Option Two - hire an engineer to design a building for Janice based on her concepts, then hire a contractor to construct the building and the new storage.

Janice discovers that the cost of the plans will be included in the price of the building negotiated with the contractor so she chooses Option Two. Regardless of which option Janice chose, she would need to ensure that her building project meets the requirements set out in the Construction and Siting Protocol.

Conclusion

In order to construct the new barn and expand to 160 head of cows Janice must complete a NMS. Janice wants to use best management practices in the operation of her farm that will maintain water quality. She plans to establish a 3 m (10 ft) buffer from the watercourse and ensure no manure is applied within 15 m (50 ft) of her well. She will also incorporate runoff control from her outdoor confinement area into her NMS.

Farmers should have a thorough understanding of the NMS/P to implement their plan and maximize the agronomic and economic value of their manure. Regardless of who completes the NMS/P, the farm operator is responsible for implementation of the plan and the monitoring of all activity regulated under the plan.

Appendices - Introduction

A selection of the most common forms that are part of a NMS/P are included in the Appendices. Appendices A and B are concept sketches of a Farm Unit Sketch and a Detailed Farmstead Sketch. The sketches do not show all of the details that may be required for an approved sketch. Specific details required in a sketch can be found in the Nutrient Management Regulation 267/03, as amended, and the associated Nutrient Management Protocol, Parts 5 and 7. These items are also available at **www.omafra.gov.on.ca.** The following lists (Farmstead or Field Sketch Requirements) outline the items that may or may not be needed to complete the sketches.

Refer to Regulation 267/03, as amended, and the associated Protocols to determine your sketch requirements.

Farmstead Sketch

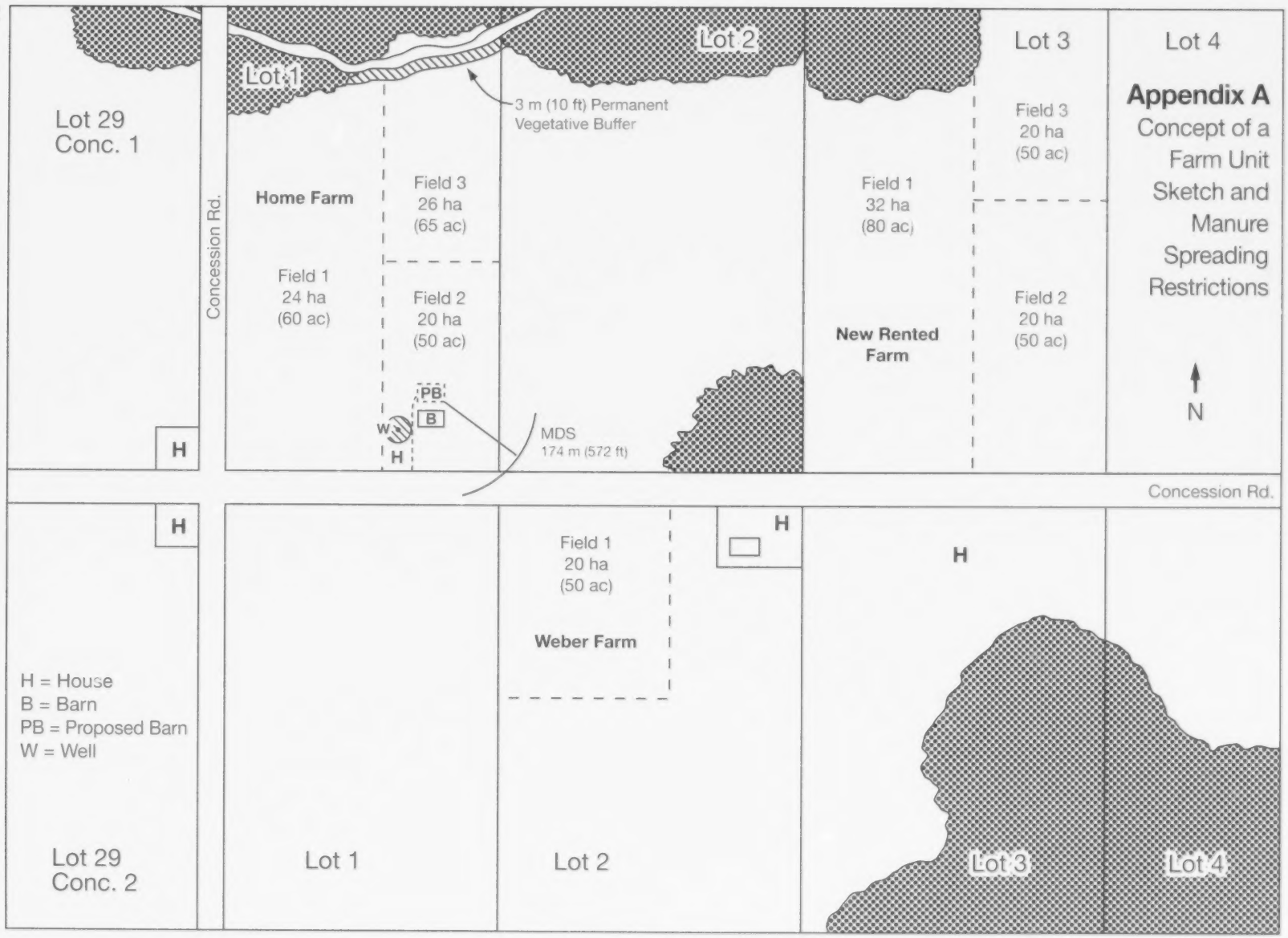
1. North direction arrow
2. Property identifier
3. Label whether the land is owned, controlled (rented or leased) or if there is an application agreement
4. Road names, municipal boundaries, neighbours and other local features
5. Permanent, temporary and proposed generating facilities
6. Permanent, temporary and proposed storage facilities and sites
7. Dimensions of all generating and storage facilities and sites
8. Distance between facilities and lot lines
9. Location of flow paths and physical barriers*
10. Location of wells (includes gas, oil, test and water wells)
11. Location of municipal wells
12. Location of tile inlets
13. Location of surface water
14. Location of other non-agricultural land uses

* *Including these items as part of a sketch may facilitate the approval of your application by providing details required as part of compliance with Regulation 267/03, as amended.*

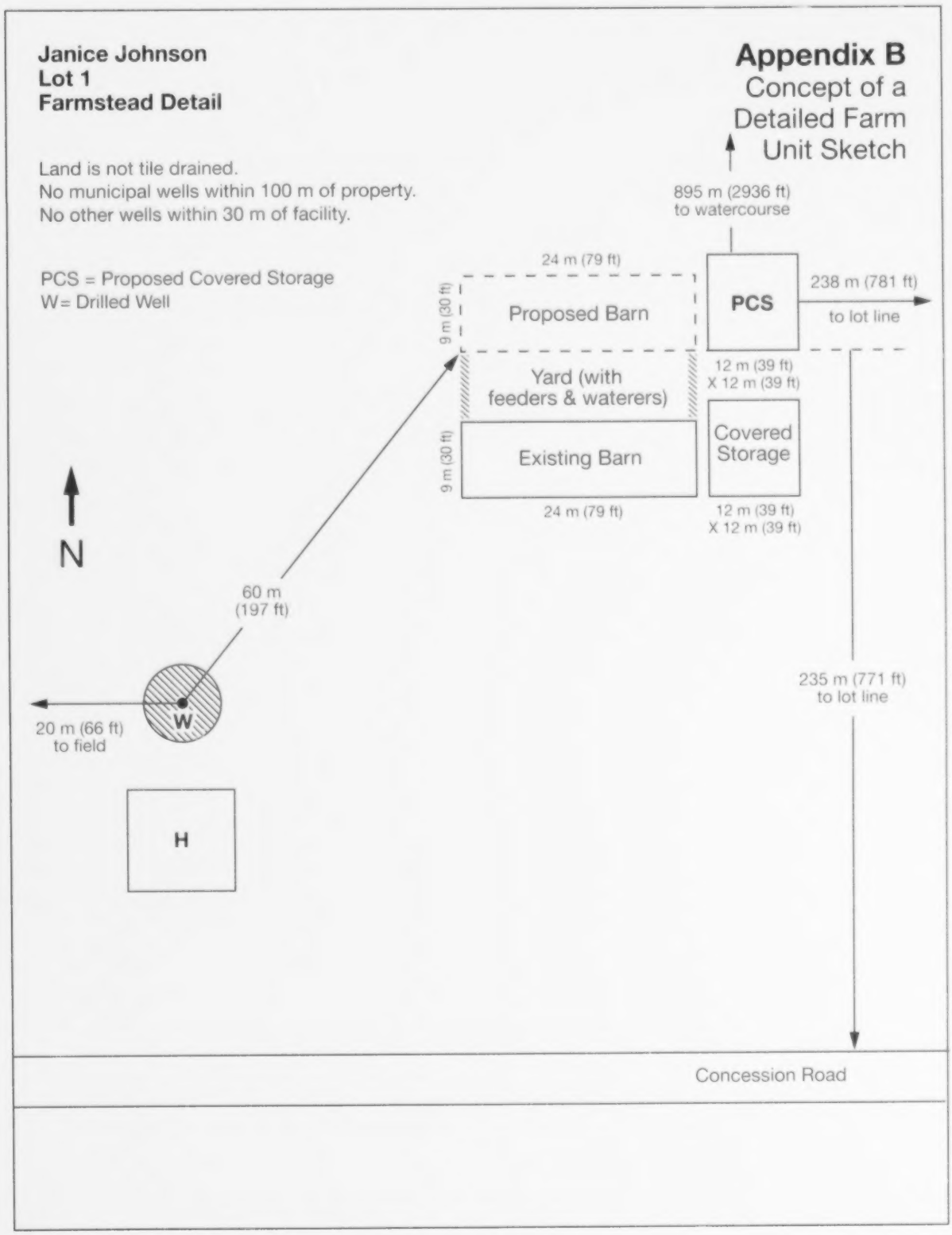
Field Sketch

1. Field identifier (from Farm Unit declaration)
2. Section within a field that has more than one section
3. Identify whether tile drains exist
4. Location of tile inlets*
5. Location of tile outlets*
6. Location of surface water within 150 m (492 ft) of the field*
7. Location of non-agricultural land uses
8. Location of municipal wells within 100 m (328 ft) of a field boundary
9. Location of all other known wells within 90 m (295 ft) of the field boundary if the field is receiving biosolids
10. Location of all other known wells within 30 m (98 ft) of the field boundary if the field is only receiving agricultural source material
11. Setback distances required from all wells*
12. Minimum depth to saturated soil conditions
13. Maximum sustained field slope*
14. Maximum sustained field slopes within 150 m (492 ft) of the top of the bank of all surface water
15. Setback distances required from surface water established by the minimum separation distance and/or the phosphorus index
16. Location of all permanently vegetated buffer zones*

** Including these items as part of a sketch may facilitate the approval of your application by providing details required as part of compliance with Regulation 267/03, as amended.*



Appendices A and B are concept sketches. The drawings do not show all of the details which may be required for an approved sketch. Specific details required in a sketch can be found in the Nutrient Management Regulation 267/03, as amended and the associated Nutrient Management Protocol, Parts 5 and 7. These items are available at www.omafra.gov.on.ca.



Appendices A and B are concept sketches. The drawings do not show all of the details which may be required for an approved sketch. Specific details required in a sketch can be found in the Nutrient Management Regulation 267/03, as amended and the associated Nutrient Management Protocol, Parts 5 and 7. These items are available at www.omafra.gov.on.ca.

Soil-Ag
Lab Services
(An OMAFRA Accredited Lab)

Unit A - 10 Dirt Street
HOMETOWN, Ontario A0A 0A0

Soil Test Report

Date Submitted: May 20, 2005.
Report Date: June 1, 2005.

Customer	Sample ID	Lab#	pH	BpH	Organic Matter %	NO_3-N (ppm)	$NaHCO_3$ Test Phosphorus (ppm)	Potassium (K) (ppm)	Magnesium (ppm)	Calcium (ppm)
Johnson	Home-F1	574	7.2		3.3		43	199	112	
Johnson	Home-F1	575	6.8		3.4		47	200	135	
Johnson	Home-F2	576	6.9		3.4		41	202	122	
Johnson	Home-F2	577	7.1		3.4		48	198	132	
Johnson	Home-F3	573	7.2		3.3		43	197	128	
Johnson	Home-F3	579	7.2		3.3		43	199	112	
Johnson	Home-F3	580	6.8		3.4		47	200	135	
Johnson	New-F1	581	6.9		3.2		21	201	127	
Johnson	New-F1	582	7.4		2.4		20	178	142	
Johnson	New-F1	583	7.1		3.0		19	200	147	
Johnson	New-F1	584	7.2		2.9		22	190	149	
Johnson	New-F2	585	7.0		3.1		14	192	130	
Johnson	New-F2	586	7.0		3.5		26	210	142	

Soil-Ag
Lab Services
(An OMAFRA Accredited Lab)

Unit A - 10 Dirt Street
HOMETOWN, Ontario A0A 0A0

Soil Test Report

Date Submitted: May 20, 2005.
Report Date: June 1, 2005.

Customer	Sample ID	Lab#	pH	BpH	Organic Matter %	NO_3-N (ppm)	$NaHCO_3$ Test Phosphorus (ppm)	Potassium (K) (ppm)	Magnesium (ppm)	Calcium (ppm)
Johnson	New-F3	587	7.2		3.3		43	199	112	
Johnson	New-F3	588	6.8		3.4		47	200	135	
Johnson	Web-F1	589	7.2		3.3		18	199	112	
Johnson	Web-F1	590	6.8		3.0		22	200	127	

Appendix D - Manure Contingency Plan (Sample) - Janice Johnson Farms, 2006

EMERGENCY CONTACT TELEPHONE NUMBERS

Spills Action Centre	1-800-268-6060
Ministry of the Environment (Local Office)	1-222-333-4444
Backhoe Operator: Excavations Inc.	1-222-333-4444
Dump Truck Operator: Dumptrucks Ltd.	1-222-333-4444

On-Site Emergency Equipment

Solid manure spreader • Tractor • Skidsteer loader

This contingency plan sets out possible actions that can be taken in the event that this Nutrient Management Strategy and Plan cannot be followed.

More Nutrient Than The Nutrient Management Strategy Or Plan Have Addressed

If the application rates for nutrients in a nutrient management plan are not at the maximum, the nutrient management plan can be reviewed to ascertain whether the application rate and possibly the frequency of application can be increased for certain parts of the land. Any changes made to the plan must be recorded to reflect the actual amount of nutrient applied. In some cases, this may mean an update of the nutrient management plan is necessary.

If the application rates for nutrients in a nutrient management plan are at the maximum, the operator must be prepared to set up alternate uses for the nutrients. Some possibilities include:

- finding a broker who can take the excess nutrient (a Broker Agreement would be required under such circumstances).
- finding an intermediate generator who will accept the excess nutrient (a Nutrient Transfer Agreement would be required under such circumstances).
- acquiring more land through ownership, control or other arrangements.

More Nutrient Than The Storage Design Capacity

In some cases, generally due to adverse weather conditions, the storage may not be sufficient to store all manure produced.

To overcome this problem, the preferred solution would be to land-apply the manure where doing so will not result in an adverse effect.

Options

- Alter your Nutrient Management Plan if the application rates are not already at the maximum and renew if required by the regulation.
- Transfer the nutrient to an available storage facility with excess capacity (a Nutrient Transfer Agreement may be required).
- Work with your broker to take the excess.
- Obtain access to more land through ownership or by means of an Application Agreement or land rental.
- Transfer to another farm or farm unit, and document appropriately.
- Utilize temporary in-field storage.
- Use in-barn storage between crop clean outs to extend the capacity of the storage.

Weather Or Equipment Conditions Impeding Planned Storage Or Application

Manure Application Change

- When the timing of a manure application must be changed, adjust the nutrient amounts to reflect the change in application timing.
- In making such changes, you must not exceed the maximum annual nutrient application rate or the maximum rate per application.
- The application rate must comply with the requirements of the Regulation.
- Adjust subsequent applications of nutrients to accommodate the change in timing of the nutrient application and record the change in your NMP.

Crop Change

- Nutrient amounts and formulation should be adjusted (where possible) to account for a change in designated crop.
- If the nutrients have already been applied, the amount and formulation should be adjusted for the next crop to be grown, where possible, to account for the previous crop change.

Commercial Fertilizer Material or Analysis Change

- Where the nutrient composition that is listed in the NMP is altered, the altered material or analysis should be reflected in the NMAN plan.
- Subsequent nutrient applications should reflect these changes to the original NMP.

Agricultural Operations: Unanticipated Release Of Nutrients

These are important issues to be dealt with in a contingency plan due to the adverse effects that can occur. The contingency plan must outline the required equipment, contacts and safety precautions. The idea is to minimize the potential for a spill and if one does occur to ensure that the operator and the employees know what actions to implement.

To Avoid A Spill You Should:

- Calibrate your manure application equipment to apply at rates indicated in your NMP.
- Avoid spreading solid manure closer to a watercourse than indicated by your NMP.
- Do not apply manure on steep slopes and avoid spreading on snow or prior to rainfall.
- Do not apply manure within 30 m (100 ft) of a dug well or within 15 m (50 ft) of a drilled well.

If A Spill Does Occur

- Immediately rectify cause of spill.
- Contain the material to minimize opportunity for material to move off site.
- Notify the Spills Action Centre.
- Clean up the spill and land apply the material in accordance with the Nutrient Management Plan or return the material to storage.
- Re-evaluate manure handling procedures and the effectiveness of the contingency plan.

Appendix E - Farm Unit Declaration Form

Ontario Ministry of Agriculture, Food and Rural Affairs

Farm Unit Declaration Form

1. General Information

A Farm Unit as defined by the *Nutrient Management Act, 2002*, Ontario Regulation 267/03 (as amended) is the basis for a Nutrient Management Strategy and/or Nutrient Management Plan.

For each Farm Unit there is only one Nutrient Management Strategy and one Nutrient Management Plan.

The Farm Unit must include all land on the property where the nutrients are generated.

The Farm Unit may include other properties.

2. Contact Information

Name of Farm Unit Operator

Legal Farm Name

911 Address *(Street No., Street Name, RR, Lot, Concession, Township)*

City/Town/Village	*Province* Ontario	*Postal Code*

Telephone No. *Home (incl. Area code)*	Telephone No. *Business (incl. Area code and ext.)*
E-mail address	Operation Identifier *(if previously assigned by Ministry)*

3. Declaration

As the farm unit operator I declare that the facilities and property referred to in Table 1 comprise the entirety of this Farm Unit. I acknowledge the requirement to complete a Nutrient Management Plan and/or Strategy, and that such Nutrient Management Plan and/or Strategy shall include all of the lands identified on this form.

I hereby warrant that the information contained on this form is true, and that I have authority to complete this document.

Indicate the type of operation that this Farm Unit is in: *(check ☒ one only)*

☐ Corporation *(specify name below)*

☐ Division of a Corporation *(specify name below)*

Name of Corporation ***or*** Division of Corporation

☐ Partnership *(specify names and addresses of Partners below)*

☐ Sole Proprietorship *(specify name and address of Owner below)*

Names and Addresses of Partners ***or*** Name and Address of Owner

Name of Farm Unit Operator *(please print)*	Signature	Date *(yyyy/mm/dd)*
Name of Witness *(please print)*	Signature	Date *(yyyy/mm/dd)*

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Table 1 Location and Identification of Land that is Part of this Farm Unit

Give each farm a unique name that will also be used in the Nutrient Management Plan for this Farm Unit.
Be sure to list all roll numbers, concessions and lots that are related to this Farm Unit.

☐ As seen in NMAN

Farm Name	911 Address	Roll Number	Upper Tier *(county)*	Lower Tier *(township)*	Geo Township *(former township)*	Concession	Lot	Tillable Area *(include units ha or ac)*	Generator or Receiver *(check ☒ any that apply)*	Status *(check ☒ one)*
									☐ Generator ☐ Receiver	☐ Owned ☐ Rented ☐ Agreement
									☐ Generator ☐ Receiver	☐ Owned ☐ Rented ☐ Agreement
									☐ Generator ☐ Receiver	☐ Owned ☐ Rented ☐ Agreement
									☐ Generator ☐ Receiver	☐ Owned ☐ Rented ☐ Agreement
									☐ Generator ☐ Receiver	☐ Owned ☐ Rented ☐ Agreement
									☐ Generator ☐ Receiver	☐ Owned ☐ Rented ☐ Agreement
									☐ Generator ☐ Receiver	☐ Owned ☐ Rented ☐ Agreement
									☐ Generator ☐ Receiver	☐ Owned ☐ Rented ☐ Agreement
									☐ Generator ☐ Receiver	☐ Owned ☐ Rented ☐ Agreement

☐ Additional land listings are attached.

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Ontario Ministry of Agriculture, Food and Rural Affairs

Nutrient Management Strategy Application Form

A. General Information

This form is for those applicants that choose NOT to use the NMAN software to prepare the Nutrient Management Strategy they are required to submit to the Province of Ontario. Please ensure you read all the material. Once completed and signed, this is a legal document that you have certified to be correct. This form, once completed with the required attachments, will constitute the Nutrient Management Strategy. It is your responsibility to review/follow Ontario Regulation 267/03, as amended. The Reviewer's Checklist is a good reference tool when completing your application.

- Please ensure to retain a copy of your completed NM Strategy (and NM Plan, if applicable) for your records. Please note, approved documents will not be returned. It is your responsibility to keep copies of the documents that comprise your approved NMS.
- You will be contacted by OMAFRA staff if you are required to provide additional information during the review process.
- Upon approval, your NM Strategy is valid for a period of 5 years. At that time, you are not required to resubmit, but are required to update the NM Strategy and to keep it on file and available for inspection, if requested.

B. Application Status

Please check ☒ which of the following applies:

☐ This NMS is being submitted for approval.

☐ This NMS is being submitted as part of the submitter's certification requirements.

C. Operation Information

1. Farm Unit Operator

Name of Farm Unit Operator

Legal Farm Name

Address

See Farm Unit Declaration Form (attached)

2. Certified Nutrient Management Planner

Name of Certified Nutrient Management Planner

Certification Number

Telephone No. *(incl. Area code)*	E-mail Address

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Ontario Ministry of Agriculture, Food and Rural Affairs

Nutrient Management Strategy Application Form

Section 1 Overview of the Operation

Please provide a description of the operation including the following:

1. Reason for submission (expanding operation, new operation, planned changes).
2. Type and size of operation.
3. Overview of livestock/poultry facilities and practices that impact nutrient management, e.g. all in/all out; feed additives used.
4. Prescribed material produced or received, including all Non-agricultural source material (NASM).
5. Overview of cropping and management practices.

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Nutrient Management Strategy Application Form

Section 2 Farm Unit Declaration

1. Please attach the Farm Unit Declaration form.
2. For corporations, please attach a copy of the first page of your Articles of Incorporation showing the incorporation number. If there has been a name and/or address change please attach MCBS Schedule A (part of the T23 Corporate Tax and Annual Return). These documents will be used for verification of the recorded name and address.

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Nutrient Management Strategy Application Form

Section 3 Farm Unit and Farmstead Sketches

Map of Farm Unit Properties *(attach clearly labelled map)*

(The Farm Unit map may be a photocopy of a map of the area representing all properties, computer generated or hand drawn. More than one map may be required to include all properties. Please ensure all features listed below are shown. The map should be readable and include a north arrow.)

- Location of the entire land base declared in the Farm Unit:
  1. Land owned or controlled (rented or leased) or otherwise forms part of the Farm Unit;
  2. Road names, municipal boundaries.

Farmstead Sketch *(attach clearly labelled sketch)*

(The farmstead sketch(s) may be an aerial photo, computer generated or hand drawn and must include/address the following items, either by including them on the sketch, or indicating on the sketch that they do not exist. Sketch should be readable and include north arrow.)

- Location of generation facilities and storage(s):
  1. Permanent, temporary and proposed generating facilities;
  2. Permanent, temporary and proposed storage facilities and sites;
  3. Dimensions of all generating and storage facilities and sites.
- Distance from sensitive features to the nearest permanent nutrient storage/generating facility, including:
  1. Known wells (includes gas, oil, test and water wells);
  2. Municipal wells;
  3. Tile inlets;
  4. Surface water (as defined in Part I of O.Reg. 267/03).
- For nutrient storage within 50 metres of surface water, show a Flow Path of at least 50 metres to surface water or tile inlet.

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Nutrient Management Strategy Application Form

Section 4 Volume of Prescribed Material Produced Annually

Please provide a detailed description of the prescribed material produced and/or transferred into the Farm Unit in Table 4.1 and 4.2. *(Must include all prescribed materials generated in and transferred into this Farm Unit).*

1. Ensure all liquid systems, washwater, runoff from scrape alleys and paved yards or roofs are included in total volume of liquid prescribed material for this operation.
2. Ensure additional bedding is included in the total volume of solid prescribed material for this operation.
3. Ensure any runoff from solid storages is accounted for.
4. If livestock weight is lower than the value in Table 3.1 of the Nutrient Management Protocol incorporated into O.Reg. 267/03, as amended, a comprehensive detailed explanation must be attached.
5. For manure storage calculations:
   a. **New or expanding facilitie**s – the number of farm animals must be equal to or greater than the number determined using the Housing Capacity Guidelines (provided in O.Reg. 267/03 Table 3.1) or documentation must be included indicating that the maximum housing capacity of the barn is less than the Housing Capacity Guidelines.
   b. **Existing facilities** – the manure storage calculations are based on actual usage of the facility.
   c. In all cases, a comprehensive, written explanation must be included if the declared housing usage is less than the maximum housing capacity of the barn.
6. Attach and clearly label detailed volume calculation of prescribed materials.

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TABLE 4.1 Description of Generating Facilities that are Part of this Operation

Number of Livestock for Each Generating Facility included as Part of the Operation

Complete the information below using the three (3) livestock categories listed in the Reference Table for Determining the Number of Nutrient Units per Livestock Type found on page 17.

Farm Name as Recorded in the Farm Unit Declaration	Type of Livestock	Subtype	Sub-subtype	Number of Livestock	Nutrient Units	Storage System Number *(from Table 5.1)*	Annual Agricultural Source Material Production *(per Storage System)*	Agricultural Source Material Production Units
1.								☐ Litres ☐ Tonnes ☐ Gallons (Imp.) ☐ Tons
2.								☐ Litres ☐ Tonnes ☐ Gallons (Imp.) ☐ Tons
3.								☐ Litres ☐ Tonnes ☐ Gallons (Imp.) ☐ Tons
4.								☐ Litres ☐ Tonnes ☐ Gallons (Imp.) ☐ Tons
5.								☐ Litres ☐ Tonnes ☐ Gallons (Imp.) ☐ Tons
6.								☐ Litres ☐ Tonnes ☐ Gallons (Imp.) ☐ Tons

☐ Additional generating facilities listings are attached.

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Table 4.2 Location and Identification of Incoming Prescribed Material Transfers

☐ No incoming transfers; all prescribed material is generated on this Farm Unit *(check ☒ if applicable)*

Name of Generator *(record operation identifier if applicable)*	**Roll Number**	**Upper Tier** *(county)*	**Lower Tier** *(township)*	**Geo Township** *(former township)*	**Concession**	**Lot**	**Type of Agricultural Source Material** *(e.g. solid dairy manure)*	**Date** *(yyyy/mm/dd)*	**Amount of Material** *(provide units of measure)*

☐ Additional incoming transfer listings are attached.

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Nutrient Management Strategy Application Form

Section 5 Storage Facilities

1. Ensure storage location and dimensions are included in the Farmstead Sketch.
2. Ensure liquid storage has 0.30 metres minimum freeboard, or 0.15 metres if storage has a non-slatted floor ***and*** is permanently covered.
3. If runoff management is required for one or more solid storage facilities, complete and attach the ***Runoff Management Checklist*** *available at www.omafra.gov.on.ca* .
4. If temporary storage is required, complete and attach ***Temporary Storage Checklist*** *available at www.omafra.gov.on.ca* .
5. For new and expanding prescribed material storage facilities, attach an ***Engineer's Commitment Certificate***. The *Engineer's Commitment Certificate* is ***not*** required for a permanent, solid nutrient storage facility that has (O.Reg. 267/03, Section 62):
   a. a volume less than 600 cubic metres ;
   b. a surface area less than 600 square metres; ***and***
   c. walls that do not have an exposed height of more than 1 metre.
6. Document the number of days of storage for each storage facility identified in Table 5.1.
7. Attach and clearly label the calculations of the days of storage for each storage system listed in Tables 4.1 and 5.1.
8. If the number of days of storage is less than 240, attach a detailed description showing how the prescribed materials will be managed within the storage capacity of the operation.
9. The prescribed materials generated in the NM Strategy must be accounted for in the NM Plan.

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Table 5.1 Description of Storage Facilities that are Part of this Farm Unit

Name of Facility	Type of Facility	Type of Storage *(check ☒ one)*	Dimensions *(include units of dimension in feet or metres)*	Storage Covered *(check ☒ one)*	Agricultural Source Material Type *(check ☒ one)*	Storage System Number *(transfer to Table 4.1)*	Days of Storage *(per Storage System)*
1.	☐ Existing ☐ Proposed	☐ Concrete ☐ Earthen ☐ Steel ☐ Temporary		☐ Yes ☐ No	☐ Solid ☐ Liquid		
2.	☐ Existing ☐ Proposed	☐ Concrete ☐ Earthen ☐ Steel ☐ Temporary		☐ Yes ☐ No	☐ Solid ☐ Liquid		
3.	☐ Existing ☐ Proposed	☐ Concrete ☐ Earthen ☐ Steel ☐ Temporary		☐ Yes ☐ No	☐ Solid ☐ Liquid		
4.	☐ Existing ☐ Proposed	☐ Concrete ☐ Earthen ☐ Steel ☐ Temporary		☐ Yes ☐ No	☐ Solid ☐ Liquid		
5.	☐ Existing ☐ Proposed	☐ Concrete ☐ Earthen ☐ Steel ☐ Temporary		☐ Yes ☐ No	☐ Solid ☐ Liquid		
6.	☐ Existing ☐ Proposed	☐ Concrete ☐ Earthen ☐ Steel ☐ Temporary		☐ Yes ☐ No	☐ Solid ☐ Liquid		
7.	☐ Existing ☐ Proposed	☐ Concrete ☐ Earthen ☐ Steel ☐ Temporary		☐ Yes ☐ No	☐ Solid ☐ Liquid		

☐ Additional storage facilities listings are attached.

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Nutrient Management Strategy Application Form

Section 6 Nutrient Content of Prescribed Materials

Complete Table 6.1 on the following page, including the following information:

1. List the nutrient values (ammonia and ammonium nitrogen, total kjeldahl nitrogen, total phosphorous, total potassium and total solids) for the prescribed materials generated or received as part of this operation.
2. If databank nutrient content was used, the dry matter must correspond to the predicted dry matter range in Appendix 1 of the Nutrient Management Protocol.
3. If nutrient analysis is used, attach and clearly label the test results. If the test results vary from those provided in Appendix 1 of the Nutrient Management Protocol, attach an explanation.
4. For blended manures, attach detailed calculations of nutrient and dry matter content.
5. Attach other information, e.g. verification of use and influence of feed additives (if used), separator or digester used.

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Table 6.1 Nutrient Content of Prescribed Materials

Prescribed Material (describe related to storage or transfer-in identified in Table 4.2)	Nutrient Content					Check ☒ method for determining nutrient values	
	Ammonium – N (NH4-N)	Total Kjeldahl Nitrogen (TKN)	Total Phosphorus (P)	Total Potassium (K)	Total Solids (dry matter)	Data-Bank *(check ☒ one)*	Lab Analysis (attach copy) *(check ☒ one)*
1. *e.g.* Liquid Heifer Manure (values reported as % of fresh weight)	700 ppm	1.2%	0.23%	1.5%	1.8%	☐ Yes ☐ No	☐ Yes ☐ No
1.						☐ Yes ☐ No	☐ Yes ☐ No
2.						☐ Yes ☐ No	☐ Yes ☐ No
3.						☐ Yes ☐ No	☐ Yes ☐ No
4.						☐ Yes ☐ No	☐ Yes ☐ No
5.						☐ Yes ☐ No	☐ Yes ☐ No
6.						☐ Yes ☐ No	☐ Yes ☐ No

☐ Additional storage facilities listings are attached.

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Nutrient Management Strategy Application Form

Section 7 Destination of Prescribed Materials

For all prescribed materials generated on the Farm Unit or other operation, a detailed, written description of their intended destination is required. Please fill out Table 7.1. Indicate the percentage of prescribed materials being land applied in the Farm Unit and transferred off the Farm Unit for each manure system for each of five (5) years.

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Table 7.1 Destination of Prescribed Materials

Prescribed Material (describe related to storage or transfer-in identified in Table 4.2)	**Year**	**Source** *(check ☒ one)*	**Type**	**Amount** (Include Units of Measure)	**Days of Storage**	**Destination**
1. *e.g.* Hog Feeder Storage	2006	☐ This Farm Unit ☐ Another Ag Operation ☐ Non-Ag Operation	Swine	900,000 gallons	240	This Farm Unit % Transferred %
1.		☐ This Farm Unit ☐ Another Ag Operation ☐ Non-Ag Operation				This Farm Unit % Transferred %
2.		☐ This Farm Unit ☐ Another Ag Operation ☐ Non-Ag Operation				This Farm Unit % Transferred %
3.		☐ This Farm Unit ☐ Another Ag Operation ☐ Non-Ag Operation				This Farm Unit % Transferred %
4.		☐ This Farm Unit ☐ Another Ag Operation ☐ Non-Ag Operation				This Farm Unit % Transferred %
5.		☐ This Farm Unit ☐ Another Ag Operation ☐ Non-Ag Operation				This Farm Unit % Transferred %
6.		☐ This Farm Unit ☐ Another Ag Operation ☐ Non-Ag Operation				This Farm Unit % Transferred %
7.		☐ This Farm Unit ☐ Another Ag Operation ☐ Non-Ag Operation				This Farm Unit % Transferred %
8.		☐ This Farm Unit ☐ Another Ag Operation ☐ Non-Ag Operation				This Farm Unit % Transferred %

☐ Additional storage facilities listings are attached.

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Nutrient Management Strategy Application Form

Section 8 Transfer of Prescribed Materials

1. **For transfer of prescribed materials out of the Farm Unit, please provide the following in Table 8.1:**
   1. Type of transfer (broker, NMA transfer, non-NMA transfer).
   2. Name of receiver.
   3. Location.
   4. Volume of prescribed materials being transferred.
   5. Tillable acres available for the prescribed material.
   6. Date of transfer.
2. **Attach any necessary transfer or broker agreements as per O. Reg. 267/03. s.20, s.36, s. 37.**
   To ensure your contract meets your commercial needs outside of the regulatory requirements, you should seek legal advice.

   Transfer Agreements must identify:
   1. the person who owns or controls the operation **from** which the materials are to be transferred;
   2. the person who owns or controls the operation **to** which the materials are to be transferred;
   3. the type of material to be transferred;
   4. the quantity of material to be transferred;
   5. the proposed date of transfer; and
   6. the operation identifiers of both the receiving and generating operations, if assigned.

   Broker agreements with generators must identify:
   1. the type of prescribed material to be received;
   2. the quantity of prescribed material to be received;
   3. the projected date of receipt;
   4. a description of the operation in which the prescribed material was generated;
   5. the operation identifier for the operation in which the material was generated or for the farm unit where the operation is carried out, if assigned.

   The broker shall retain the above records for four years after the date of receiving the prescribed materials.

   Broker agreements with receivers must identify:
   1. the type of prescribed material to be transferred;
   2. the quantity of prescribed material to be transferred;
   3. the proposed date of transfer;
   4. a description of the operation to which the prescribed material was transferred;
   5. the operation identifier for the operation or for the farm unit where the operation is carried out, if assigned.

   The broker shall retain the above records for four years after the date of transferring the prescribed materials.

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Table 8.1 Location and Identification of Outgoing Prescribed Material Transfers

☐ No outgoing transfers; all prescribed material is applied on this Farm Unit *(check ☒ if applicable)*

Type of Transfer *(check ☒ one)*	Name of Receiver	911 Address	Roll Number	Upper Tier *(county)*	Lower Tier *(township)*	Geo Township *(former township)*	Conc.	Lot	Telephone *(incl. Area code)*	Tillable Acres	Date *(yyyy/mm/dd)*	Amount of Agricultural Source Material *(provide units of measure)*
☐ Broker ☐ NMA Transfer ☐ Non-NMA Transfer												
☐ Broker ☐ NMA Transfer ☐ Non-NMA Transfer												
☐ Broker ☐ NMA Transfer ☐ Non-NMA Transfer												
☐ Broker ☐ NMA Transfer ☐ Non-NMA Transfer												
☐ Broker ☐ NMA Transfer ☐ Non-NMA Transfer												
☐ Broker ☐ NMA Transfer ☐ Non-NMA Transfer												
☐ Broker ☐ NMA Transfer ☐ Non-NMA Transfer												
☐ Broker ☐ NMA Transfer ☐ Non-NMA Transfer												
☐ Broker ☐ NMA Transfer ☐ Non-NMA Transfer												

☐ Additional outgoing transfer listings are attached.

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Section 9 Contingency Plan

Does this operation have a written Contingency Plan that includes all of the items listed below?

☐ Yes ☐ No

The Contingency Plan must address all of the following in the event unforeseen circumstances occur:

1. The names and contact numbers for people who are authorized to make decisions for the operation in an emergency.
2. When more nutrients are generated and/or received than planned.
3. When storage is reaching capacity sooner than planned.
4. Unanticipated release of nutrients (e.g. spills, breaks in equipment or storage, etc.). List the phone numbers for **MOE Spills Action Centre (1 800 268-6060)**, local municipalities, emergency assistance and the names and phone numbers of neighbours and heavy equipment operators to contact.

   Indicate how you will:

   - Avoid a spill
   - Stop a spill
   - Contain a spill
5. When weather conditions and/or equipment conditions and availability prevent planned storage or field application.

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Appendix F - Nutrient Management Strategy Application Form

Reference Table for Determining the Number of Nutrient Units per Livestock Type

Type of Livestock			
Type	**Subtype**	**Sub-subtype**	**Nutrient Units (animals/NU)**
Beef	Backgrounders (7–12.5 months)	Confinement	3
Beef	Backgrounders (7–12.5 months)	Yard/Barn	3
Beef	Cows (includes calves to weaning)	Confinement	1
Beef	Cows (includes calves to weaning)	Deep Bedded	1
Beef	Cows (includes calves to weaning)	Yard/Barn	1
Beef	Feeders (7–16 months)	Confinement	3
Beef	Feeders (7–16 months)	Confinement Bedded Pack	3
Beef	Feeders (7–16 months)	Confinement Total Slats	3
Beef	Feeders (7–16 months)	Yard/Barn	3
Beef	Short Keep (12.5–17.5 months)	Confinement	2
Chickens	Broiler Breeder Growers (females + males transferred out)	Floor System	300
Chickens	Broiler Breeder Layer (females + males transferred in)	Cages	100
Chickens	Broiler Breeder Layer (females + males transferred in)	Litter With Slats	100
Chickens	Broilers	8-Week Cycle	351
Chickens	Broilers	9-Week Cycle	300
Chickens	Broilers	10-Week Cycle	250
Chickens	Broilers	12-Week Cycle	199
Chickens	Layer Pullets (day-olds)	Cages	500
Chickens	Layer Pullets (day-olds)	Litter	500
Chickens	Laying Hens	Belt And Other Removal System (daily)	150
Chickens	Laying Hens	Belt With Air Drying (daily)	150
Chickens	Laying Hens	High Rise – Stored In Barn	150
Chickens	Laying Hens	Liquid – Stored In Barn	150
Chinchilla	Breeding Females (incl. males/rep/market animals)		320
Dairy	Calves Large-Frame		6
Dairy	Calves Medium-Frame (Guernsey size)		7
Dairy	Calves Small-Frame (Jersey size)		8.5
Dairy	Heifers Large-Frame	Deep Bedded	2
Dairy	Heifers Large-Frame	Free-Stall	2
Dairy	Heifers Large-Frame	Manure Pack Outside Access	2
Dairy	Heifers Large-Frame	Pack Scrape 1 Side	2
Dairy	Heifers Large-Frame	Pack Scrape 2 Sides	2
Dairy	Heifers Medium-Frame (Guernsey size)	Deep Bedded	2.4
Dairy	Heifers Medium-Frame (Guernsey size)	Free-Stall	2.4
Dairy	Heifers Medium-Frame (Guernsey size)	Pack Scrape	2.4
Dairy	Heifers Small-Frame (Jersey size)	Deep Bedded	2.9
Dairy	Heifers Small-Frame (Jersey size)	Free-Stall	2.9
Dairy	Heifers Small-Frame (Jersey size)	Pack Scrape	2.9

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Reference Table for Determining the Number of Nutrient Units per Livestock Type - continued

Type of Livestock			
Type	**Subtype**	**Sub-subtype**	**Nutrient Units (animals/NU)**
Dairy	Milking Age Cows Large-Frame	4-Row Free-Stall Head-To-Head	0.7
Dairy	Milking Age Cows Large-Frame	4-Row Free-Stall Tail-To-Tail	0.7
Dairy	Milking Age Cows Large-Frame	6-Row Free-Stall	0.7
Dairy	Milking Age Cows Large-Frame	Bedded Pack	0.7
Dairy	Milking Age Cows Large-Frame	3-Row Free-Stall	0.7
Dairy	Milking Age Cows Large-Frame	Sand	0.7
Dairy	Milking Age Cows Large-Frame	Tie-Stall	0.7
Dairy	Milking Age Cows Medium-Frame (Guernsey size)	Bedded Pack	0.85
Dairy	Milking Age Cows Medium-Frame (Guernsey size)	Free-Stall	0.85
Dairy	Milking Age Cows Medium-Frame (Guernsey size)	Tie-Stall	0.85
Dairy	Milking Age Cows Small-Frame (Jersey size)	Bedded Pack	1
Dairy	Milking Age Cows Small-Frame (Jersey size)	Free-Stall	1
Dairy	Milking Age Cows Small-Frame (Jersey size)	Tie-Stall	1
Deer/Elk	Elk Adults (>24 months) (includes unweaned offspring)		2
Deer/Elk	Elk Feeders		6
Deer/Elk	Elk/Red Deer Hybrid Adults (includes unweaned offspring)		4
Deer/Elk	Elk/Red Deer Hybrid Feeders		10
Deer/Elk	Fallow Deer Adults (>24 months) (includes unweaned offspring)		13
Deer/Elk	Fallow Deer Feeders		23
Deer/Elk	Red Deer Adults (>24 months) (includes unweaned offspring)		7
Deer/Elk	Red Deer Feeders		14
Deer/Elk	White-Tailed Deer Adults (>24 months) (includes unweaned offspring)		11
Deer/Elk	White-Tailed Deer Feeders		21
Ducks	Peking	Breeders	105
Ducks	Peking	Growers	105
Emu	Adults (includes offspring to market size)		12
Fox	Breeding Females (includes rep/market animals/males)		25
Goats	Dairy Does (including unweaned offspring)	Confinement	8
Goats	Dairy Kids	Confinement	
Goats	Feeder Kids (>20 kg)	Confinement	
Goats	Mature Meat Goat (including unweaned offspring)		8

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Reference Table for Determining the Number of Nutrient Units per Livestock Type - continued

Type of Livestock			
Type	**Subtype**	**Sub-subtype**	**Nutrient Units (animals/NU)**
Horses	Large-Frame (including unweaned offspring)	Box Stalls	0.7
Horses	Medium-Frame (including unweaned offspring)	Box Stalls	1
Horses	Small-Frame (including unweaned offspring)	Box Stalls	2
Mink	Breeding Females (includes rep/market animals/males)		90
Ostrich	Adults (includes offspring to market size)		4
Rabbits	Breeding Does (includes bucks/rep/fryers)	1-Tier Cages	40
Rabbits	Breeding Does (includes bucks/rep/fryers)	2-Tier Cages	40
Rabbits	Breeding Does (includes bucks/rep/fryers)	3-Tier Cages	40
Sheep	Dairy and Feeder Lambs	Confinement	20
Sheep	Dairy and Feeder Lambs	Outside Access	20
Sheep	Dairy Ewes and Rams (including unweaned offspring and replacements)	Confinement	6
Sheep	Meat Ewes and Rams (including unweaned offspring and replacements)	Confinement	8
Sheep	Meat Ewes and Rams (including unweaned offspring and replacements)	Outside Access	0
Swine	Feeders	Full Slats	6
Swine	Feeders	Full Slats (wet/dry feeders)	6
Swine	Feeders	Deep Bedded	6
Swine	Feeders	Partial Slats	6
Swine	Feeders	Partial Slats (wet/dry feeders)	6
Swine	Feeders	Solid Scrape	6
Swine	Gilts – Breeders		5
Swine	Sows (dry) (AI)	non-SEW	3.64
Swine	Sows (dry) and Boars	non-SEW	3.5
Swine	Sows (dry) and Boars	SEW	3.33
Swine	Sows with Litters	non-SEW	3.5
Swine	Sows with Litters	SEW	3.33
Swine	Sows, boars, and litters	SEW	3.5
Swine	Weaners	non-SEW	20
Swine	Weaners	non-SEW (wet/dry)	20
Swine	Weaners	SEW	20
Swine	Weaners	SEW (wet/dry)	20

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Reference Table for Determining the Number of Nutrient Units per Livestock Type - continued

Type of Livestock			
Type	**Subtype**	**Sub-subtype**	**Nutrient Units (animals/NU)**
Turkeys	Breeder Toms		0
Turkeys	Broilers <6.2kg		133
Turkeys	Hens 6.2–10.8 kg		107
Turkeys	Toms >10.8 kg		76
Turkeys	Turkey Breeder Layers		0
Turkeys	Turkey Pullet (0–6 weeks)		267
Veal	Grain-Fed Veal		6
Veal	Milk-Fed Veal		6

NOTE:

For animals not listed in the table above, the number of animals per nutrient unit can be calculated by determining the number of animals that will produce the amount of nutrients that give the fertilizer replacement value of the lower of 43 kilograms of nitrogen or 55 kilograms of phosphate as nutrient. Consult with Ministry staff if assistance is required to complete this calculation.

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Appendix G - Nutrient Management Strategy and/or Plan Sign Off Form

Ontario Ministry of Agriculture, Food and Rural Affairs

Nutrient Management Strategy *and/or* Plan Sign-Off Form

1. Contact Information

Name of Farm Unit Operator

Legal Farm Name

911 Address *(Street No., Street Name, RR, Lot, Concession, Township)*

City/Town/Village	*Province* Ontario	*Postal Code*

Telephone No. *Home (incl. Area code)*	Telephone No. *Business (incl. Area code and ext.)*
E-mail address	Operation Identifier *(if previously assigned by Ministry)*

2. Applicant Declaration

As the farm unit operator, I hereby certify that

a. to the best of my knowledge, excluding unforeseen or uncontrollable circumstances, the information contained in this application provides an accurate description of the existing and proposed operation over the time period covered by this plan or strategy,

b. I understand that in the course of the administration of the Act, the Ministry may provide the information contained in this application to external agents or the Ministry of the Environment for review and analysis, and authorize the Ministry to provide this information to its external agents, and authorize its external agents or the Ministry of the Environment to collect this information from the Ministry, and

c. I, the applicant, ☐ authorize *OR* ☐ do not authorize the Certified Nutrient Management Planner who prepared this strategy and/or plan to act as my agent for the purposes of obtaining approval for this application, and to provide the Ministry, or its agents, any information required in the review of this application.

Name of Applicant *(please print)*	Signature	Date *(yyyy/mm/dd)*

3. Declaration of Individual who Prepared this Strategy and/or Plan

I, the individual who prepared this strategy and/or plan, hereby certify that based on relevant information provided in good faith and excluding unforeseen or uncontrollable circumstances, the recommendations contained in this application will, if implemented, result in acceptable management practices in accordance to the regulation and protocols under the *Nutrient Management Act, 2002*.

Certification No. *(if applicable)*

Name of Individual who Prepared this Strategy and/or Plan *(please print)*	Signature	Date *(yyyy/mm/dd)*

4. Provision of False Information in this Application

Any false or misleading information submitted by the applicant in this document may result in the invalidation of any approvals or permits granted, and prosecution in accordance to the provisions of the *Nutrient Management Act, 2002*.

This application may consist of all or some of the following:

- Overview of the Operation
- Farm Unit Declaration
- Farm Unit Sketch
- Description of Storage Facilities
- Description of Generating Facilities
- Location and Identification of Incoming
- Prescribed Material Transfers
- Nutrient Content of Prescribed Material
- Destination of Prescribed Material
- Transfer of Prescribed Material
- Volume of Prescribed Material Produced Annually
- Contingency Plan
- Field Properties
- Field Sketches
- Soil Samples and Analysis
- Crop Rotation and Yields
- Tillage Practices
- Commercial Fertilizer Application
- Application of Prescribed Materials
- Agronomic and Crop Removal Balance for Nitrogen and Phosphorus

Notice of Collection

Personal information provided in this application is collected under the authority of the *Nutrient Management Act, 2002* and Ontario Regulation 267/03, s. 28(1), s. 29(1) & (1.1), or s. 30(1) & (1.1). It will be used for the review, approval, enforcement and audit of the strategy or plan and research. The information may be made available to external experts contracted by OMAFRA for advice during review and approval, and to the Ministry of the Environment for advice during review and approval or for enforcement purposes. The following information from approved strategies or plans will be used to create a public record:

1. name of farm operation;
2. owner of the farm unit and developer of each strategy or plan;
3. properties covered by the declared farm unit of each strategy or plan;
4. days storage in each strategy; and
5. the proportion of the nutrient applied to the declared farm unit of each strategy or plan, and the proportion moved to other properties.

Questions about the collection of information can be directed to the Manager, Approvals, Nutrient Management Branch, Ministry of Agriculture, Food and Rural Affairs, 1 Stone Road West, Guelph ON N1G 4Y2, telephone: 519-826-6368.

NM-002 (Rev. 01/2006) (NMStrategy and/or PlanSignOff)

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Special thanks to all those who have contributed to this publication by lending their expertise and resources.

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To Obtain More Information:
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Notes

Notes

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ISBN: 1-4249-0783-7
Queen's Printer for Ontario, 2006
05-06-2M

Aussi disponible en français.

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